



# FACTSHEET



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## AN/AQS-20A Minehunting Sonar System

### Background

The AN/AQS-20A mine-hunting sonar is designed for the detection, classification, localization, and identification of sea mines. The system is comprised of acoustic and optical sensors, housed in a towed underwater body that can maintain operator-selected depths below the surface or operator-selected heights above the bottom. The AN/AQS-20A has over 2,900 hours of testing tow time and has demonstrated proven performance on three different platforms, including the MH-53E helicopter, the MH-60S helicopter, and AN/WLD-1 remote mine-hunting system (RMS).

### Description

Considered the U.S. Navy's standard for mine hunting, the AN/AQS-20A is an advanced helicopter and subsurface, towed, mine-hunting sonar system. When coupled with the remote multi-mission vehicle (RMMV), the paired systems comprise the RMS. The AN/AQS-20A incorporates five separate sonar sensors in a compact, lightweight, and hydro-dynamically stable, towed body. It uses state-of-the-art imaging sonars, signal processing, and computer algorithms to provide real-time, computer-aided detection and classification against the full spectrum of mine threats. The AN/AQS-20A automatically localizes mine-like objects and provides the operator with a visual image and a contact data list. All mission data is recorded by the host platform for post-mission analysis.

The AN/AQS-20A's computer processing power and advanced signal processing, coupled with its portability, reduces the amount of time required to search an area. These features also significantly increase search-rate agility. By reducing the size of the platform and the number of crew



required to deploy the system, the AN/AQS-20A safely and efficiently consolidates expansive mine-sweeping operations that previously required a large mine warfare platform manned by more than 80 crew members. This low-risk approach gives the fleet an organic mine countermeasures capability in the near term that meets all Navy requirements. The AN/AQS-20A maximizes platform integration flexibility on a variety of air, surface, or subsurface platforms. One towed body satisfies the requirements of three platforms through common hardware, software, and interfaces; common integrated logistics support; and modular operational configurations. The AN/AQS-20A has been extensively tested and operated from the RMMV and could be integrated into future unmanned surface vehicles.

The combination of side-scan, forward-looking, and gap-filler sonars, enables the AN/AQS-20A to detect and classify mine-like objects from the seafloor to the near surface, in a single pass. The system also has an electro-optical identification capability that delivers high-definition images of bottom mines, using streak tube imaging laser (STIL) technology. The STIL technology provides the operator with both range and contrast data that combines to form a 3D image during post-mission



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analysis. This feature aids in mine identification and the AN/AQS-20A is the only system with such capability.

In addition, the AN/AQS-20A modes enable the system to give timely and accurate information on the location and position of mines, so that they can be quickly neutralized by minesweepers, and, in the future, by an airborne mine neutralization system.

Four modes of operation are provided:

- Single Pass Shallow Mode – Bottom and moored mine coverage in a single pass.
- Single Pass Deep Mode – Moored mine coverage in deep water.
- Volume Mine Mode – Volume mine coverage at four times the area search rate.
- Identification Mode – Bottom and moored mine coverage in a single pass, plus optical imaging of bottom mines.

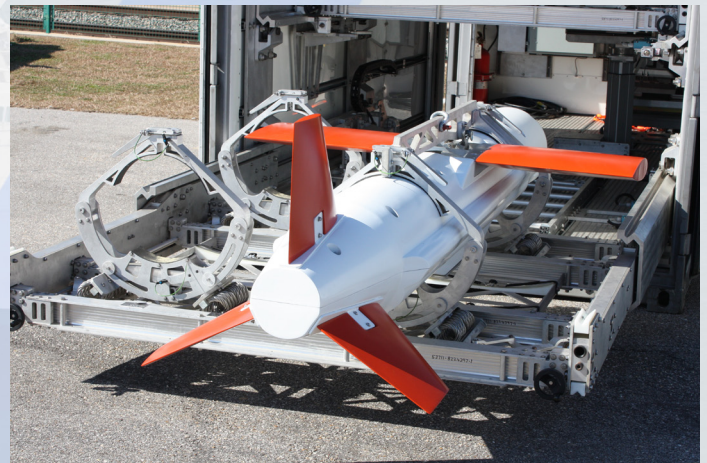
## Options for Environmental Data Collection and Test/Analysis

A high-speed data recording capability is available to support environmental data collection that is used to determine bottom and sediment type. This capability greatly aids in mission planning. Additionally, the recorded data is used in the testing of new system functions and algorithms. The high-capacity recorder retains raw beam data from all sonars, as well as electro-optical data used to identify potential improvements to the system.

## Options for Airborne Employment

The AN/AQS-20A towed body, operator display console, winch/tow cable, deployment/recovery equipment, cradle, and post-mission analysis (PMA) are available to allow deployment from medium/heavy-lift helicopters, such as the MH-53 and MH-60S. The console consists of two operator stations, two flat panel displays, a processor assembly, a power distribution assembly and a mission data recorder. Analysis of mission data is accomplished via point-and-click technology. The winch/tow cable

has approximately 880 ft. of cable with fairing, fiber-optic telemetry, and three tow stops. The PMA features a variable speed playback of mission data, as well as operator analysis tools. Similar common console and carriage, stream, tow, and recovery system (CSTRS) hardware, included with the airborne mine countermeasure mission kit, provides deployment, recovery, and an operational environment for MH-60S AN/AQS-20A towed body employment.



Towed Body Specifications	
Length:	10.5 ft.
Wingspan:	60 in.
Width:	15.5 in. diameter
Weight:	975 lb. (air) 120 lb. (water)
Power:	2 kW

